



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

*[Handwritten signature]*

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,641	12/05/2001	Masayuki Nishikawa	70868/56773	6791

21874 7590 08/31/2004

EDWARDS & ANGELL, LLP  
P.O. BOX 55874  
BOSTON, MA 02205

EXAMINER

ORTIZ CRIADO, JORGE L

ART UNIT PAPER NUMBER

2655

DATE MAILED: 08/31/2004

*[Handwritten number 5]*

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/004,641

Applicant(s)

NISHIKAWA, MASAYUKI

Examiner

Jorge L Ortiz-Criado

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,6 and 7 is/are rejected.
- 7) ☒ Claim(s) 3-5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3,4.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakano U.S. Patent no. 6,438,090.

Regarding claim 1, Nakano discloses an optical pickup apparatus for a recording medium having a light transmitting layer on which an information signal is recorded (See Figs 6 and 7, col. 7, lines 3 to col. 9, line 30), comprising:

a light source for emitting light (See Fig. 6, ref# 1);

an objective lens for focusing the light emitted from the light source onto the recording medium (See Fig. 7, ref# 10);

focusing driving means for moving the objective lens in a first direction which is parallel to an optical axis thereof (See col. 9, line 3-11);

tracking driving means for driving the objective lens in a second direction which is perpendicular to the optical axis (See col. 8, line 6-15);

a lens assembly disposed between the light source and the objective lens and having a plurality of lenses each of which is independently displaceable along an optical axis thereof (see Fig. 6, ref# 7,9) ; and

driving means for displacing the lenses in the lens assembly independently of each other along the optical axes thereof in such a manner as to reduce a spherical aberration caused due to a thickness of the light transmitting layer and spherical aberrations which occur on optical surfaces of an optical system (See col. 7, lines 26-36, col. 8, lines 22-36, col. 8, lines 48-65; col. 9, lines 12-19; col. 6, lines 44- "spherical aberration as changing focal length is caused by deviations in the lens and Nakano discloses proper focus position to disks 16a, and 16b of different thickness and surfaces")

Regarding claim 2, Nakano discloses a first lens as one of the plurality of lenses in the lens assembly; wherein the first lens is disposed in a plane containing an axis line of the recording medium and has an optical axis parallel to the axis line (See Fig. 6, ref# 9);

optical reflective means disposed on the optical axis at a position nearer to the light source than the first lens is (See Fig. 6 ref# 8); and

a second lens as one of the plurality of lenses in the lens assembly, wherein the second lens is disposed nearer to the light source than the optical reflective means is (See Fig. 6, ref# 7)

*Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano U.S. Patent no. 6,438,090 in view of Maeda et al. U.S. Patent no. 6,414,931.

Regarding claim 6, Nakano discloses a first supporting structure for supporting the first lens (See Fig. 3) and a second supporting structure for supporting the second lens (this feature is Inherently for Nakano since the actuator acts on the second lens as in the first lens) and

But Nakano fails to disclose wherein at least one of the first and second supporting structures includes: a first supporting member, formed of an elastic material, extending in a direction perpendicular to the optical axis; and a second supporting member, formed of an elastic material, provided parallel to and spaced from the first supporting member in the direction of the optical axis.

However, this feature is well known in the art as evidenced by Maeda et al. which discloses a lens driving device for optical heads and systems which discloses a supporting

Art Unit: 2655

structure including a first supporting member, formed of an elastic material, extending in a direction perpendicular to the optical axis; and a second supporting member, formed of an elastic material, provided parallel to and spaced from the first supporting member in the direction of the "optical axis" (See Fig. 2, ref# 15a,15c; 15b,15d and/or ref# 10a,10c;10b,10d)

It would have been obvious to one with ordinary skill in the art at the time of the invention to include a first and second supporting members of elastic materials to at least one of the first and second supporting structures in order to suppress fluctuations and securely positioning the lens maintaining the desired position at the desired value minimizing vibrations and suppressing spherical aberrations due to the fluctuations as suggested by Maeda et al.

Regarding claim 7, the combination of Nakano with Maeda et al. shows wherein a center of mass of one of the first and second lenses is located about midway between the first and second supporting members along the direction of the optical axis (See col. 3, lines 57-67)

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. U.S. Patent No. 6,108,139 to Takahashi and U.S. Patent No. 6,324,133 to Ichimura, which discloses an optical pickup apparatus for a recording medium having a light transmitting layer on which an information signal is recorded, comprising: a light source for emitting light; an objective lens for focusing the light emitted from the light source onto the recording medium; focusing driving means for moving the objective lens

Art Unit: 2655

in a first direction which is parallel to an optical axis thereof; tracking driving means for driving the objective lens in a second direction which is perpendicular to the optical axis; a lens assembly disposed between the light source and the objective lens and having a plurality of lenses each of which is independently displaceable along an optical axis thereof; and driving means for displacing the lenses in the lens assembly independently of each other along the optical axes thereof in such a manner as to reduce a spherical aberration caused due to a thickness of the light transmitting layer and spherical aberrations which occur on optical surfaces of an optical system.

b. U.S. patent No. 5,097,456 to Tanoshima et al., which discloses an optical an optical pickup apparatus for a recording medium having a light transmitting layer on which an information signal is recorded, comprising: a light source for emitting light; an objective lens for focusing the light emitted from the light source onto the recording medium; focusing driving means for moving the objective lens in a first direction which is parallel to an optical axis thereof; tracking driving means for driving the objective lens in a second direction which is perpendicular to the optical axis; a lens assembly disposed between the light source and the objective lens and having a plurality of lenses each of which is independently displaceable along an optical axis thereof.

c. U.S. Patent No. 5,995,292 and U.S. Patent No. 5,995,292 to McDonald, which discloses a lens assembly disposed between the light source and the objective lens and having a plurality of lenses each of which is independently displaceable along an optical axis thereof; and driving means for displacing the lenses in the lens assembly independently of each other along the optical axes thereof in such a manner as to reduce a

spherical aberration caused due to a thickness of the light transmitting layer and spherical aberrations which occur on optical surfaces of an optical system.

d. U.S. Patent No. 6,278,551 to Matsuo which discloses a lens assembly disposed between the light source and the objective lens comprising a first lens as one of the plurality of lenses in the lens assembly, wherein the first lens is disposed in a plane containing an axis line of the recording medium and has an optical axis parallel to the axis line; optical reflective means disposed on the optical axis at a position nearer to the light source than the first lens is; and a second lens as one of the plurality of lenses in the lens assembly, wherein the second lens is disposed nearer to the light source than the optical reflective means is.

*Allowable Subject Matter*

6. Claims 3-5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach alone and or in combination, the combined **first voice coil provided on the objective lens** and wound about the optical axis, a second voice coil provided on the **first lens in the lens assembly** and wound about the optical axis, and specifically **a pair of permanent magnet pieces disposed outward of the first and second**



Art Unit: 2655

voice coils and having magnetic poles oriented perpendicularly to the optical axis; focusing driving means for performing focusing by varying a current in the first voice coil; first driving means for performing positioning according to a type of the recording medium by feeding a current to the second voice coil; and second driving means for performing positioning according to the type of the recording medium by driving the second lens along the optical axis thereof..


### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jorge L Ortiz-Criado whose telephone number is (703) 305-8323. The examiner can normally be reached on Mon.-Thu.(8:30 am - 6:00 pm),Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris H To can be reached on (703) 305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

joc



W. R. YOUNG  
PRIMARY EXAMINER